

TWO AXIS MAGNETIC FIELD SENSOR  
ABSTRACT OF THE DISCLOSURE

A ferromagnetic thin-film based magnetic field sensor with first and second sensitive direction sensing structures each having a nonmagnetic intermediate layer with two major surfaces on opposite sides thereof having a magnetization reference layer on one and an anisotropic ferromagnetic material sensing layer on the other having a length in a selected length direction and a smaller width perpendicular thereto and parallel to the relatively fixed magnetization direction. The relatively fixed magnetization direction of said magnetization reference layer in each is oriented in substantially parallel to the substrate but substantially perpendicular to that of the other. An annealing process is used to form the desired magnetization directions.